DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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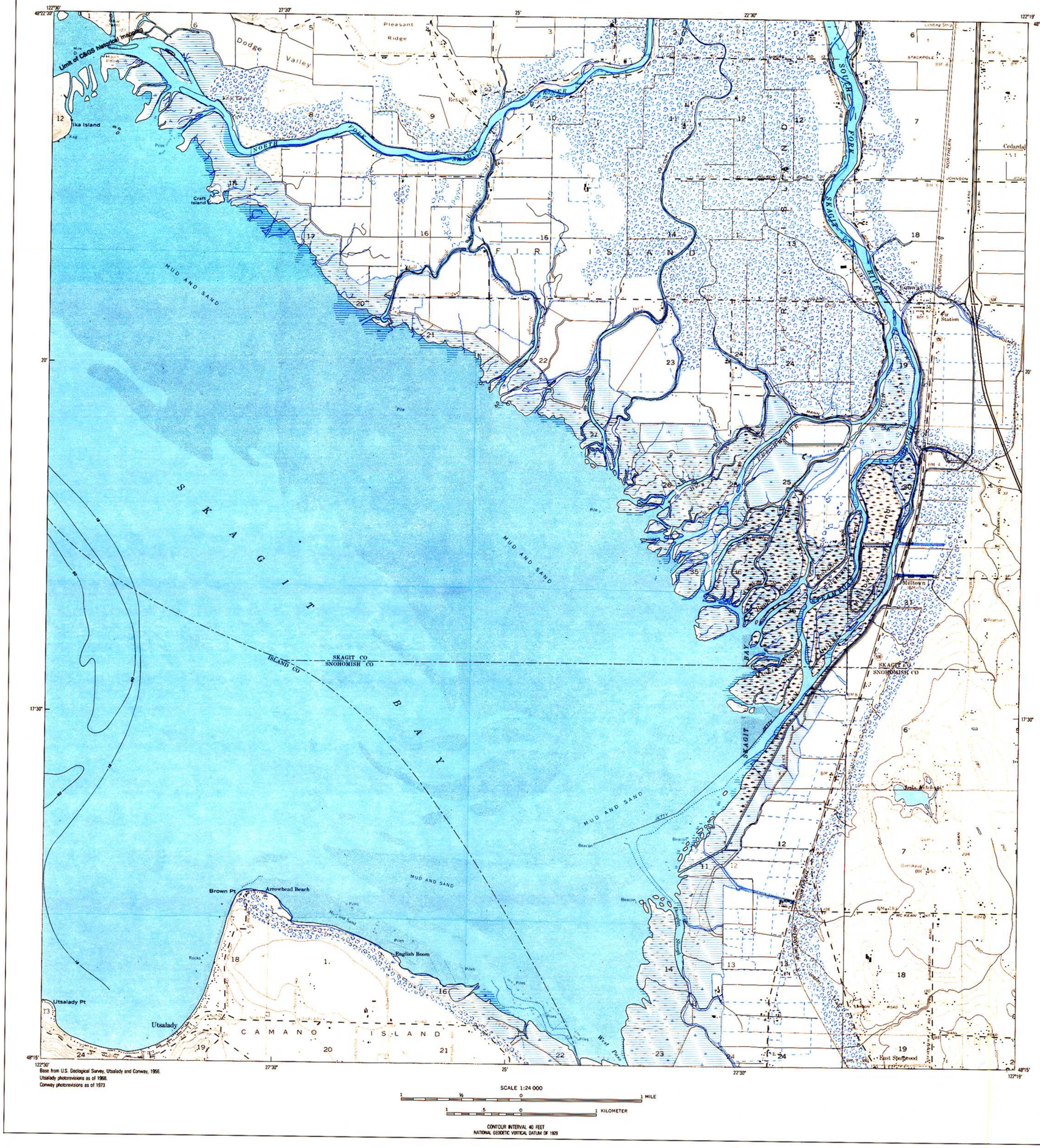
U.S. DEPARTMENT OF JUSTICE AND THE BUREAU OF INDIAN AFFAIRS

HYDROLOGIC INVESTIGATIONS
ATLAS HA-617 (SHEET 4)



EXPLANATION

Symbols for historical map	Features	Symbols for present-day map
	Shoreline	
	Mean lower low-water line	Seaward edge of intertidal wetland
	Boundaries for agricultural plots	Not shown
	Dikes or levees	
	Subaerial wetland (salt-water or fresh-water marsh)	
	(forested wetland)	Not shown
Not shown	Intertidal wetland	
	Forested upland	Not shown
	Grassland	Not shown

SKAGIT RIVER AND SKAGIT BAY

Setting

The Skagit River is the largest river in the Puget Sound region. About 13 km (8 mi) above its mouth, the river divides and discharges through two main distributaries, the North and South Forks. These forks are almost equal in length, but about 60 percent of the normal flow is carried by the North Fork and 40 percent by the South Fork. The expansive, flat-lying Skagit River delta is used mainly for agricultural purposes, but a large area of land, bayward of extensive dikes, remains as wetland. Much of the remaining subaerial wetland is in the vicinity of the many meandering distributaries of the South Fork. An extensive intertidal area, about 55 sq km (21 sq mi), lies bayward of the subaerial part of the delta.

Shoreline and Wetland Changes

At the time of the 1889 mapping, extensive dikes had been constructed and much of the wetland was in agricultural use. Since 1889, additional dikes have been built to create more land suitable for agriculture, especially on the southern one-half of the delta plain. Nearly all the Skagit River delta plain that is more than 2 or 3 km (1.2–1.9 mi) landward of the coastline has been converted from forest to agricultural land.

The southern one-half of the delta shoreline seems to have remained in about the same position, but the northern one-half apparently has receded at places. The coastal shoreline (normally shown as a solid line on C&GS maps) was not drawn by the early topographers; thus, the amount of shoreline progradation or recession cannot be estimated with confidence. However, significant shoreline changes have occurred as a result of apparently natural shifting or lateral migration of distributary channels, especially in the vicinity of the South Fork.

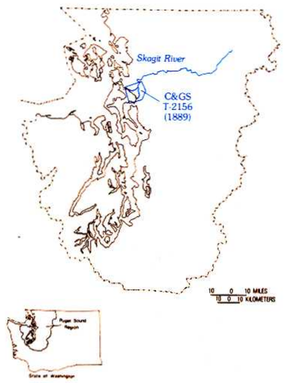
Compilation of Map

The 1889 topographic survey (T–2156) was the early source material for map compilation. Long-established dikes provided the basic control for data transfer over most of the map area. Supplemental control was provided by agricultural drainages, roads, and topographic features.

A few lateral adjustments were needed to bring the older map into good agreement with the modern map. A westward adjustment of 5 mm (.2 in) at the 1:24,000 scale of a portion of former Dry Slough was necessary to reach agreement with a local topographic depression on the modern map. This shift brought the former slough into agreement with the present-day drainage pattern, which appears to have largely persisted. Also, an arbitrary lateral adjustment of 2 mm (.08 in) to the northeast was made at Douglas Slough and extending south to West Pass. This discrepancy was believed to represent an inaccuracy in the original survey, and features in the entire area on the older map were shifted to get best agreement with present-day land features.

Summary of Environmental Changes and Some Planning Considerations

Progradation (seaward advance of shoreline)	None apparent.
Recession (landward retreat of shoreline)	The northern part of the delta shoreline seems to have receded, but this conclusion is uncertain because of incomplete data on the old map.
Channel migration	Many lateral migrations, cutting of new channels and filling of others, apparently by natural processes, are shown for the South Fork.
Channel straightening	None apparent.
Diking or substantial filling of subaerial delta land near salt-water shoreline	Dikes or levees extend along the shore of most of the subaerial delta land.
Diking or substantial filling near stream banks	Extensive diking has occurred along the distributary channels (within the mapped area and upstream).
Other artificial landfill on subaerial delta land	Several smaller sloughs have been artificially filled or converted to smaller drainage canals.
Landfill on intertidal delta land	Jetties have been constructed near the mouths of the North and South Forks.
Loss of subaerial wetland	About 12 sq km of wetland from 16 sq km mapped in 1889 (table 2). Most development of wetland predated oldest map source. The original wetland may have been as extensive as 29 sq km (table 2).
Loss of intertidal wetland	Historical data not available for comparison.
Some planning considerations	The seaward parts of the delta, especially near the South Fork, have many remaining wetland areas, sloughs, and undeveloped islands that are important habitat for fish production and wildlife. In the past, blocking of sloughs by dikes and construction of drainage ditches on the delta have reduced available habitat to less than half of its original extent. Diking has reduced incidence of flooding and salt-water incursion and enhanced productivity of agricultural land.



SOURCE MAPS FOR COMPILATION OF HISTORICAL SHORELINE AND LOCATION OF RIVER-MOUTH DELTA

HISTORICAL CHANGES OF SHORELINE AND WETLAND AT SKAGIT RIVER AND SKAGIT BAY, WASHINGTON

By
G. C. Bortleson, M. J. Chrzastowski, and A. K. Helgerson

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